MW & BC FUNDED RESEARCH PROJECTS (MSU)
1972-73

TITLE: Resistance and/or tolerance of wheat to leaf and head blotch caused by Septoria nodorum.

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: E.L. Sharp

AMOUNT FUNDED: $5,060.

OBJECTIVES:
To control Septoria disease of wheat by resistant or tolerant wheat varieties.

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TITLE: To develop cultural methods suitable for the cropping of the drylands of Montana.

INSTITUTION: Montana State University

DEPARTMENT: Research Centers

RESEARCHERS: Various - Faculty

AMOUNT FUNDED: $14,000.

OBJECTIVES:
Crop Rotations or Sequences. Considerable information is available from the old dryland crop rotation studies. However, new information is needed to supplement the old studies as crop varieties, fertilizer use, and weed control methods have all changed. The Moccasin and Kalispell Centers have already begun trials in this area. The studies will be continued. At Huntley, land upon which recropped corn and barley has been grown will be sown to small grains to ascertain the value of a row crop in the system.

Crops and Crop Varieties. Studies at Huntley indicate small grain varieties respond differently on fertilized recropped land. This indicates that possible different varieties will be needed for recropping. This aspect will be studied at Huntley,

Moccasin, Sidney, and Havre. The testing of various crops for annual hay have been conducted at Moccasin, havre, and Huntley for the past several years. After this season, enough information should be available for a publication. In addition, different varieties of safflower will be tested at Sidney; corn, sorghum, and millets at Huntley, and lentils at Moccasin and Huntley.

Pest Control. It is anticipated that crop pests will increase with continuous cropping. All centers will conduct both cultural and chemical control methods for cheat grass and volunteer grains. Some disease research is being conducted at Moccasin, and will be continued. In respect to insects, it is intended to make a survey to determine if they are more prevalent in recropped land. Sidney will conduct research on weed control in grass barriers.

Soil Fertility, Moisture Supply, Plant Population Relationships. All Centers are conducting some aspect of soil fertility on recropped land. What is needed is the development of extensive guidelines in respect to soil inventory, type of crop to plant, if any, plant population and distribution to use, and fertility requirement. No research will be conducted that involves all of these factors. However, through moisture measurements, fertility rates, and stand counts, some information will be gathered. Further planning on this aspect will be conducted during the winter.

Mechanization. It is intended to put together at Huntley this winter a three-point tool for cultivating with several attachments intended for seeding into stubble. These attachments will include presently manufactured furrow openers as well as fabricated openers. This tool bar and attachments will be available for use at all Centers as well as farmer fields. In addition to furrow openers, various types of rolling cultivators will be tested for row crops and grass barriers. The rotation studies at Moccasin also incorporate several aspects of mechanization.

Most of 1972-73 will be spent in planning and designing future trials and continuing research already in progress. During the year, a bulletin or circular will be completed on annual hays for a fallow substitute. It is intended to write an annual report covering all activities.

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TITLE: Improvement of winter and spring wheat varieties.

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: G. A. Taylor, C. F. McGuire

AMOUNT FUNDED: $20,000.

OBJECTIVES:
Protein improvement (new activity); rust resistance; and short straw (last two are continued activities.)

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TITLE: Development of control measures for soil-borne diseases of wheat.

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: Don Mathre

AMOUNT FUNDED: $12,500.

OBJECTIVES:
To develop effective control measures for soil-borne diseases of wheat.

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TITLE: Correlation of crop response to fertilizer additives with soil properties, soil test results, and climatic factors.

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: Jim Sims

AMOUNT FUNDED: $20,000.

OBJECTIVES:
Continue the acquisition, at a reduced level, of N topdressing correlation data; acquisition of sufficient field data to determine the lowest N top dressing rates and the latest application times to effect significant increases in grain protein content of wheat; completion of computer analysis of N topdressing correlation data; improvement of current or devise new laboratory soil tests for available K, S, and P; acquisition of sufficient field correlation data to improve prediction of crop needs for K, S, P, and other fertilizer nutrients; refine the new laboratory soil test for available nitrate-nitrogen.